TUNABLE OPTICAL FIBER RAMAN LASER

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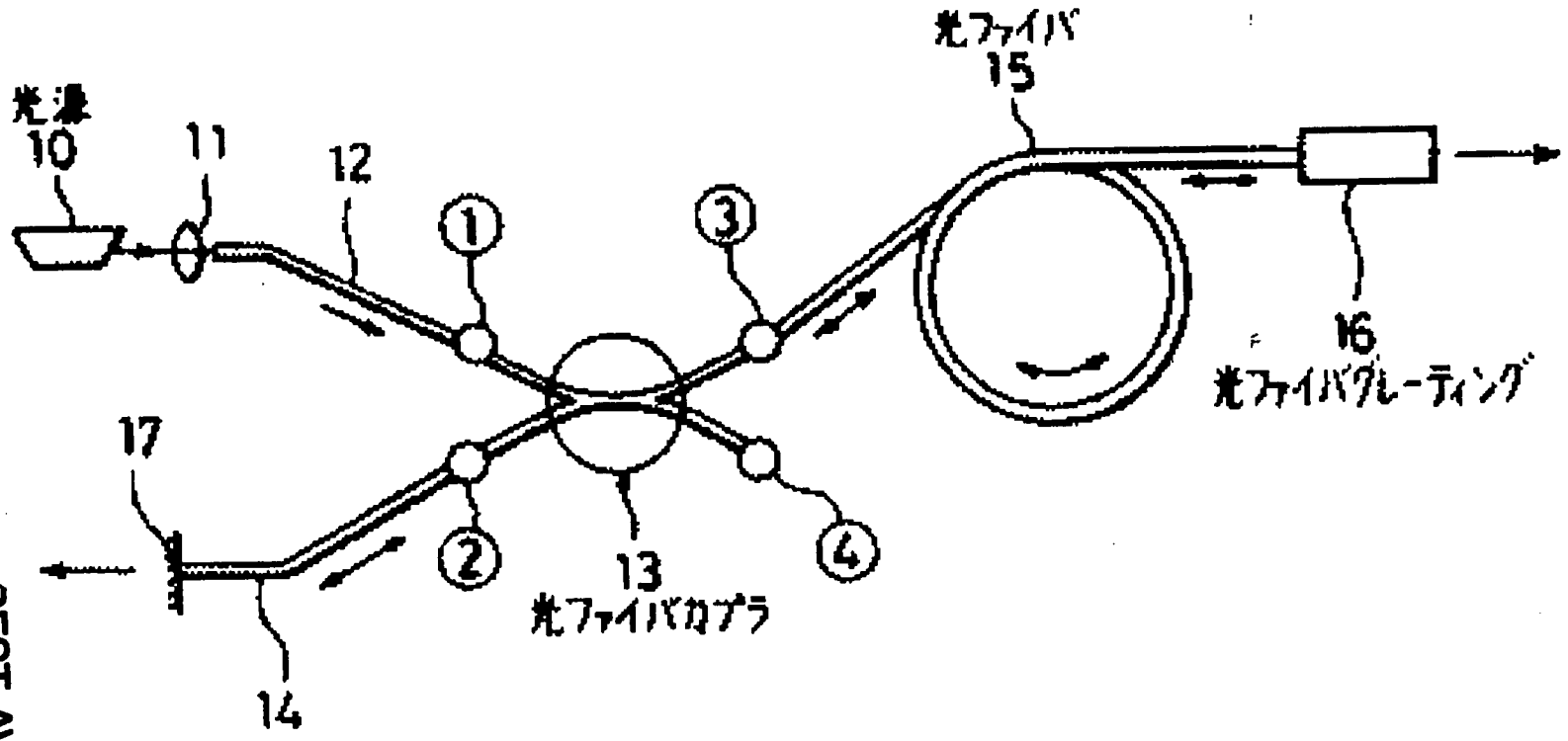
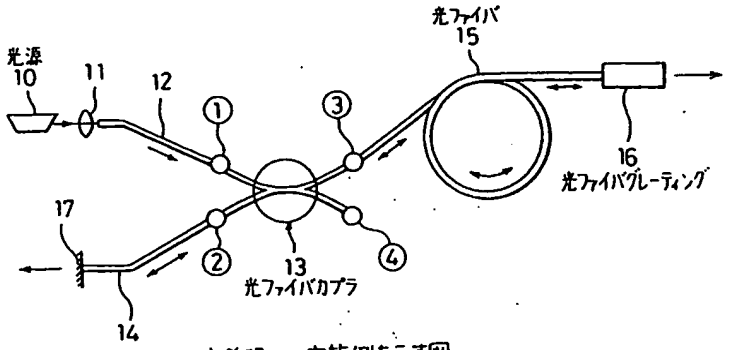
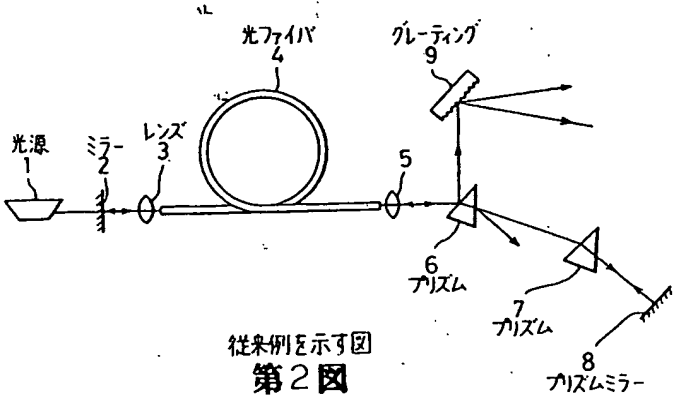
Abstract

PURPOSE:To be small-sized, of excellent stability and of enhanced reliability by a method wherein an optical fiber end-face mirror is formed at the end face of a remaining part on one end side of all optical fiber coupler so that an induced Raman scattered beam reflected selectively by a variable optical fiber type grating can go back and forth between optical fiber end-face mirrors.
CONSTITUTION:Out of induced Raman scattered beams generated, a beam with a width of 0.01Angstrom is reflected by an optical fiber grating 16 and is incident on a port (3) of an optical fiber coupler 13. The optical fiber coupler 13 transmits almost all of an induced Raman scattered beam in the whole wavelength region from the port (3) to a port (2); 97 % of optical power is reflected by an optical fiber end-face mirror 17 via the port (2) and an optical fiber 14. The reflected beam is transmitter from the port (2) of the optical fiber coupler 13 to the port (3); while it goes back and forth between the optical fiber grating 1 6 and the optical fiber endface mirror 17, it is amplified selectively by a beam from a light source 10, i.e. an excited beam; 3% of the high- intensity and narrow-spectrum induced Raman scattered beam is radiated from the optical fiber end-face mirror 17.

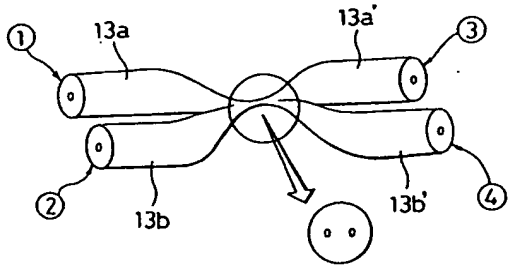




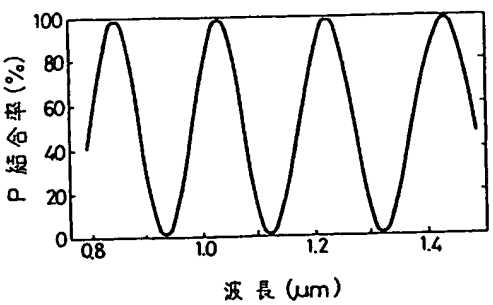
本発明の一実施例を示す図
第１図



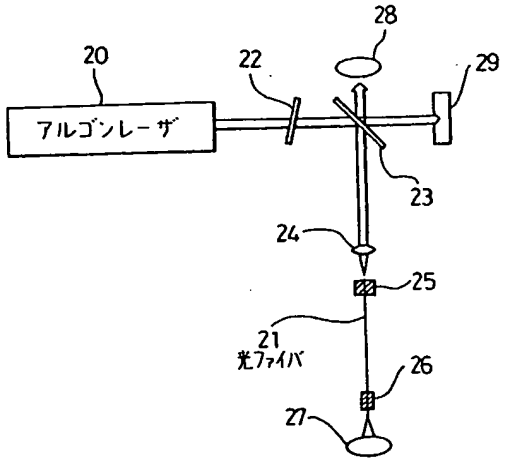
従来例を示す図
第２図



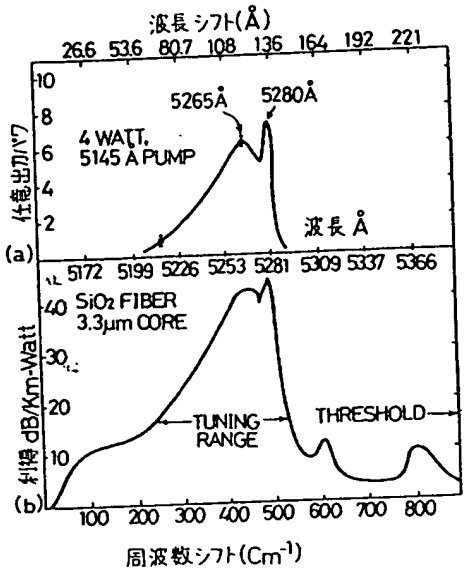
光ファイバカプラの構造を説明するための図
第３図



光ファイバカプラからの出力と波長の関係を示す図
第４図



光ファイバグレーティングの作製装置を示す図
第５図



ラマン散乱光のスペクトル及びシフト量を示す図

第6図